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 INFORMATION FROM
 FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

DATE OF
INFORMATION 1953

DATE DIST. 3 MAY 1954

COUNTRY USSR
 SUBJECT Economic; Technological - Pumps, ventilators,
 spirometer
 HOW
 PUBLISHED Daily newspapers and thrice-monthly periodical
 WHERE
 PUBLISHED USSR
 DATE
 PUBLISHED 5 Aug-16 Oct 1953
 LANGUAGE Russian

NO. OF PAGES 4

SUPPLEMENT TO
REPORT NO.

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NEW SOVIET PUMPS

NEW TECHNOLOGY IN MANUFACTURE OF PUMPS -- Moscow, Moskovskaya Pravda, 9 Oct 53

The Moscow Pump Plant imeni Kalinin is constantly increasing its output of products and decreasing its expenditures for production. For example, if gross production for 1950 is 100 percent, production for 1951 was 124.2 percent; for 1952, 145.9 percent; and for 1953, according to plan, it will be 148.8 percent. This growth in production has been attained with only a 2 percent increase in the number of workers. Figures show that in 1951, the output per worker was 119 percent as great as in 1950; in 1952, 120 percent; and in 1953, according to plan, it will be 157 percent.

The plant turns out a variety of machines. Each month it produces a large quantity of pumps of 50 type sizes for various purposes. Besides hundreds and thousands of ordinary machines of small and medium power, the plant produces in small series large pumps with intake pipes more than 20 inches in diameter, powerful suction pumps for dredges, pumps 60 meters long for use in locks, and small high-duty pumps. Each year the plant perfects several new types of machines.

Because of this wide variety, production had to be reorganized to prevent the lowering of efficiency by frequent retooling, to produce each type of machine in the shortest time, and to avoid the confusion of shops with a highly comprehensive products list.

The foundry had to assure a continuous supply of parts for more than 50 type sizes of pumps produced by the plant. About 30 percent more castings than usual had to be produced in the same molding areas. Cast-iron parts for pumps had to be of exceptionally high quality. Complex-shaped castings had to undergo hydraulic testing under high pressure. When there was leakage or sweating, which indicates water seepage through the pores of the metal, the casting was rejected.

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A description of how the plant personnel worked out a solution to these and other problems follows.

The entire products list of the plant was broken down into groups according to common technological characteristics of individual machines. A separate shop was organized where production was set up in a closed cycle for each group of pumps.

Starting with the principle of strict specialization of production, the plant organized six machine-assembly shops for filling orders for pumps according to a strict products list.

Within certain machine-assembly shops, specialized, closed, constant-flow lines were set up for one type of pump.

Each shop now has a full complement of equipment for machining and assembling the machines assigned to it. The constant flow lines are mechanized. Each machine-assembly shop receives a commodity-output assignment for specified pumps and is fully responsible for its fulfillment.

An experimental shop was created at the plant to manufacture experimental models of new machines for one-time orders of the ministry. This shop was created to avoid disturbing the specialized shops. It works in direct contact with the designers; the perfection of new machines goes on simultaneously in the design bureau and in the shop. The system ensures the production of new machines in the shortest time.

Besides the reorganization of its production, the plant is now working on an extensive plan to re-equip its shops. The equipment is being modernized on a large scale, and new devices and mechanisms are being built.

A great deal of work has been done on improving the technology at the foundry, where many operations have been mechanized. Before 1953, castings in the foundry were cleaned by sand blasting in a department occupying about 150 square meters of floor space and giving off a great deal of dust. Castings are now cleaned by metal-shot peening. A very compact shot-peening chamber was incorporated into the constant-flow process at the cleaning department. The chamber meets all of the foundry's requirements.

One of the most important technical problems, which all Soviet machine builders must solve, is to decrease the weight and cost of machines without lowering their quality, strength, or durability. Designers and technologists at the plant have carefully calculated the safety factors of the heaviest parts of dozens of type sizes of pumps, and have brought them into conformity with the present level of techniques and technology. The results of many of the calculations were unexpected.

The cover of the series-produced 8-NDV pump, for example, was reduced from 222 to 171.5 kilograms. The weight of the frame of the 14-NDS pump was decreased by 30 percent, saving 478 kilograms of metal for each machine without changing the design. The frame of the large 24-NDN machine was reduced from 4,300 to 2,900 kilograms.

In 1953, the plant has saved more than 200 tons of metal on only 22 parts.

A radical change in technology has saved a considerable amount of metal. Formerly, shafts for certain machines were made of stainless steel. Now they are made of ordinary structural steels and a layer of stainless steel is deposited on them by the metalization method.

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In the last few years, hundreds of original devices, combination tools, various high-speed methods of machining metal, and new technological processes have been used by plant personnel to cut down labor costs. In 1950, for example, it took 225.4 norm hours to produce a 12-NDS pump as compared with 180.3 hours in 1953. The plant exceeded its assignment to decrease cost of comparable production. The cost of manufacturing commodity goods was decreased by 4 percent in excess of the plan.

However, the plant has not exhausted all possibilities for decreasing labor and material costs and for improving technical and economic indexes. -- G. Udarov, director, Plant imeni Kalinin

NEW-TYPE PUMPS -- Moscow, Bloknot Agitatora, No 29, Oct 53

The Moscow Pump Plant imeni Kalinin produced more than 450 pumps for the national economy in 1953.

A new deep-water pump has been developed by the plant. The pump is mobile and can pump water to a height of 100 meters. It will be used at rural hydraulic structures.

Moscow, Vechernyaya Moskva, 16 Oct 53

In October 1953, the Moscow Pump Plant imeni Kalinin will send 150 various types of pumps to kolkhozes and sovkhoses in the Ukraine and in the Caucasus, Volga, and Altay regions. Most of the pumps will be used for irrigating dry lands and on animal husbandry farms.

The plant puts out pumps which deliver 5,000 cubic meters of water an hour.

The plant has mastered the output of vertical submerged pumps for use in agriculture. Unlike other pumps, this pump, with its motor, can be submerged 75 meters in a well. The pump can be used where the water is very deep underground.

The plant is also producing spare parts for agricultural machines.

Leningradskaya Pravda, 5 Aug 53

N. A. Grebnev, engineer at the Leningrad State Institute for the Planning of Gas and Synthetic Liquid Fuel Industry Enterprise, has developed a simple and reliable automatic apparatus for pumping sewage. This apparatus was used for the first time at the Kokhtla-Yarva Shale Gas Plant. The apparatus has been working without failure. It pumps shale water with a large ash content. Tests have established that the apparatus can also pump water heavily laden with sand.

The new apparatus pumps by means of compressed air. It does not become clogged and can be used in different branches of the national economy.

SHIPS VENTILATORS, VACUUM PUMPS, SPIROMETERS -- Frunze, Sovetskaya Kirgiziya, 3 Sep 53

Products from the Novo-Troitsk Machine Building Plant are used in more than 30 cities in the USSR. Three carloads of equipment were sent a few days ago to the Kokanda Oil Extracting Plant which is under construction in the Uzbek SSR. This is the second lot of products sent there by the Novo-Troitsk plant in 1953.

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The plant has shipped many ventilators and spirometers to Kiev and Kishinev. Somewhat earlier, a large consignment of vacuum pumps was sent to Moscow.

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